FIG.1 (Prior Art)

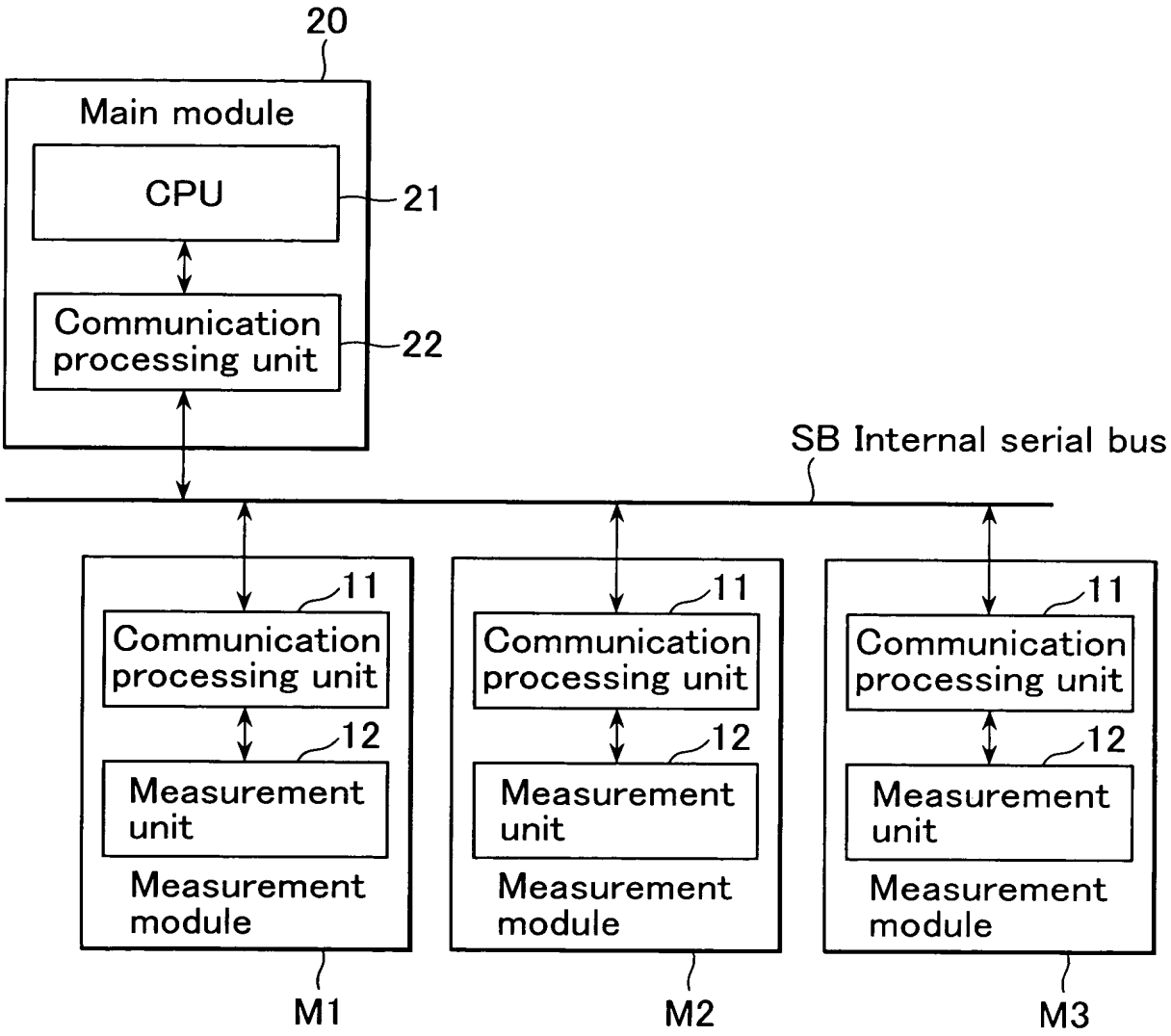


FIG.2 (Prior Art)

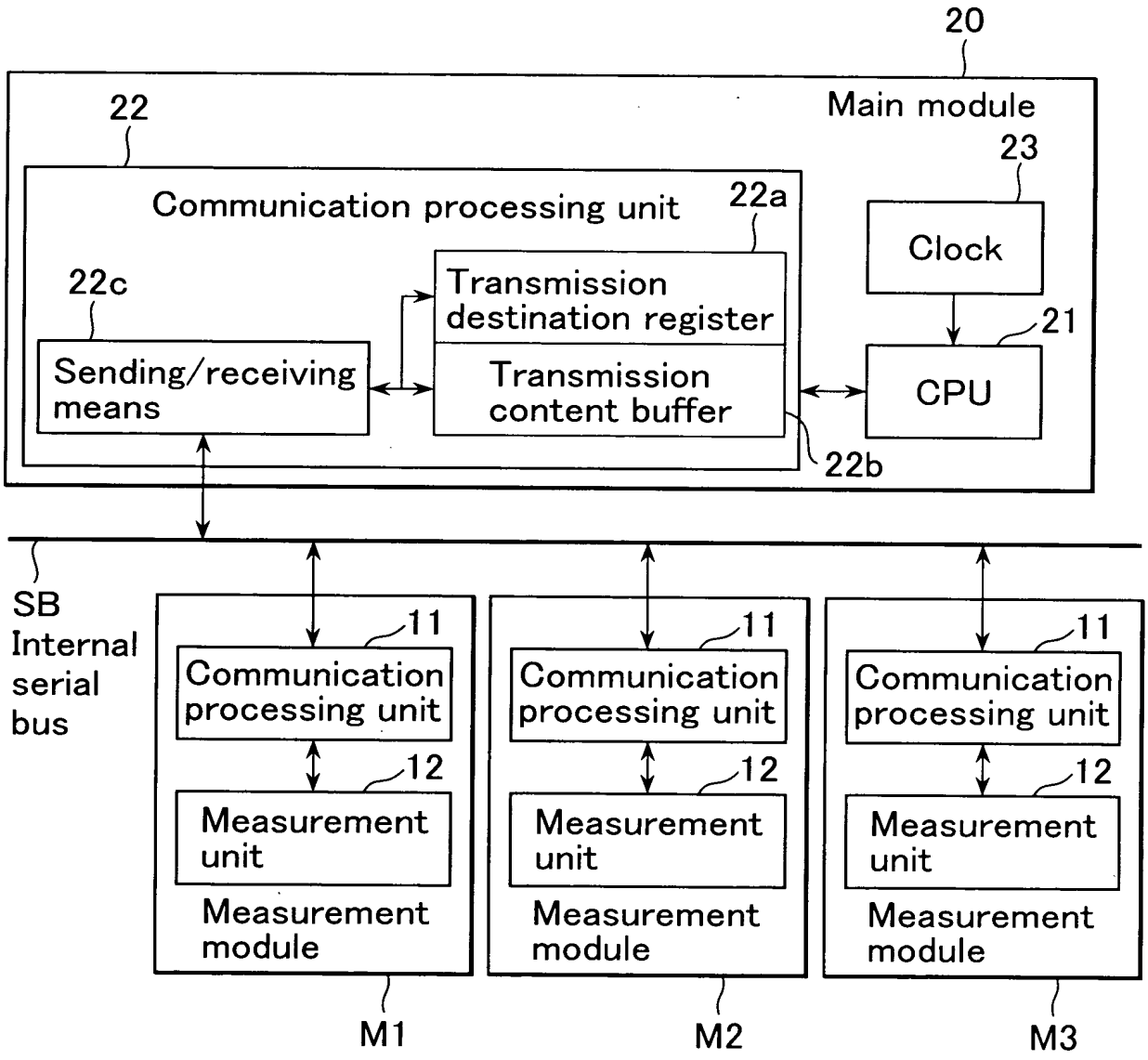


FIG.3 (Prior Art)

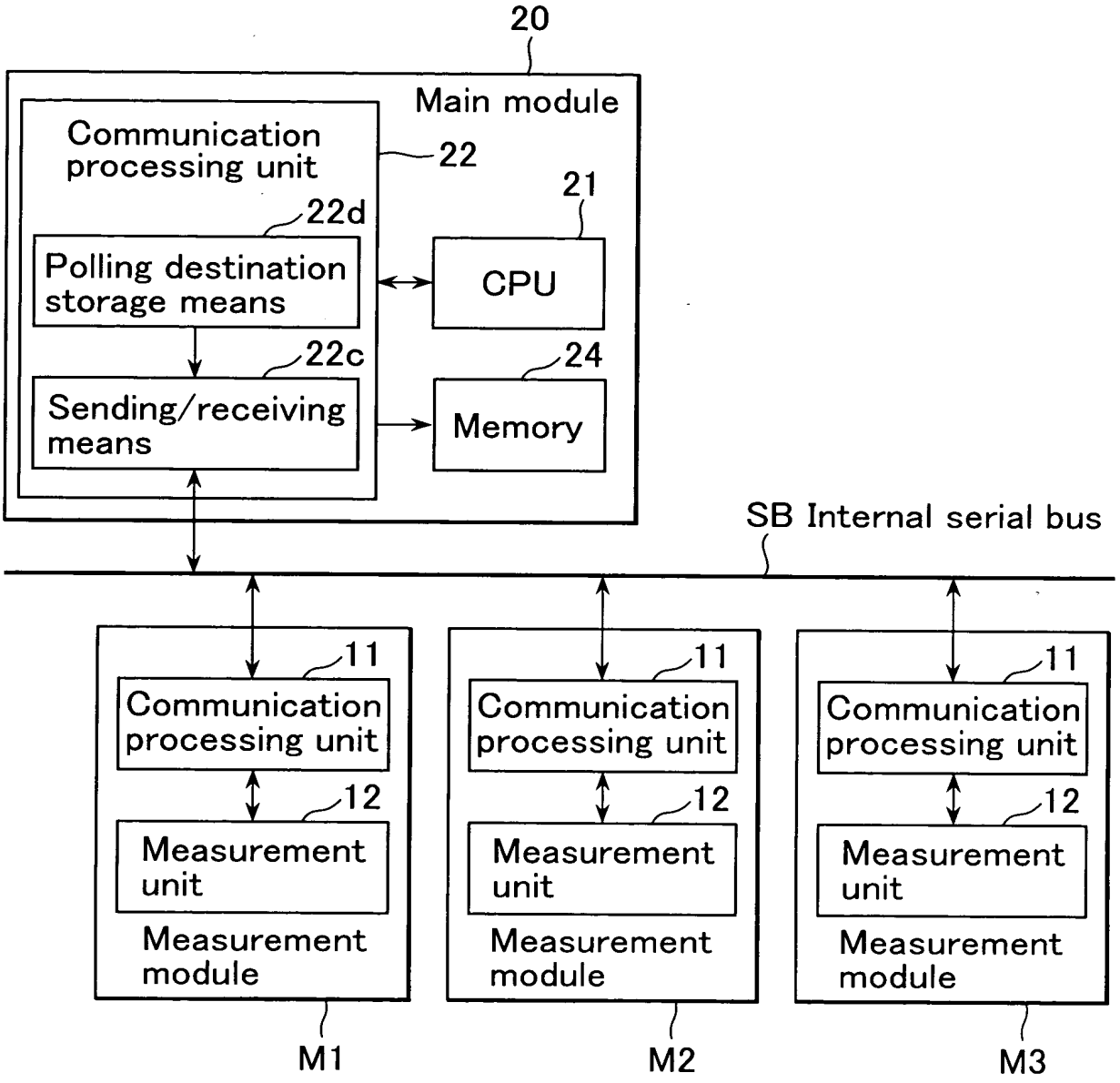


FIG.4 (Prior Art)

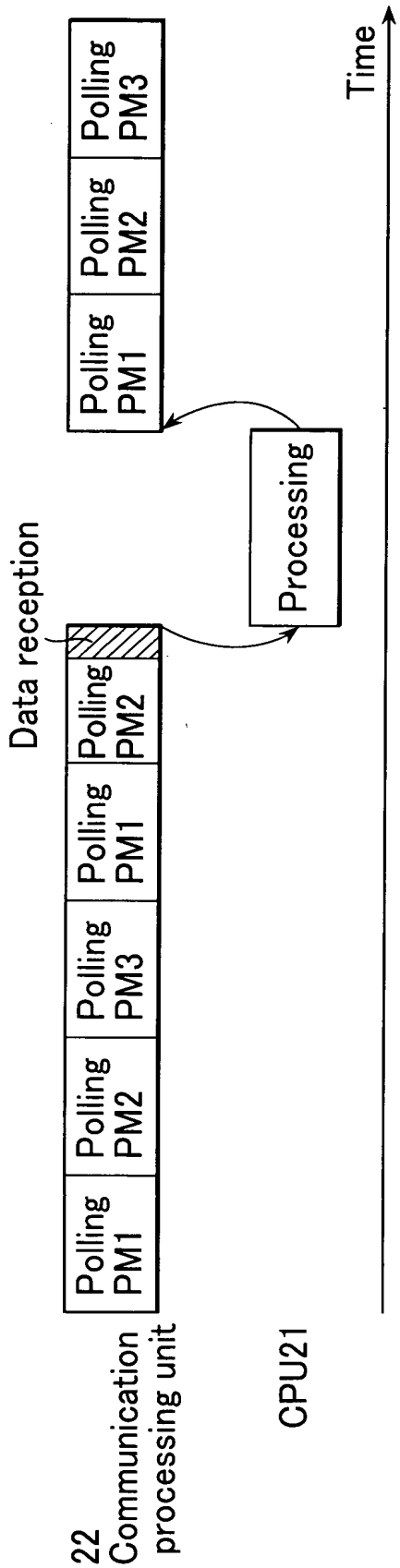


FIG.5 (Prior Art)

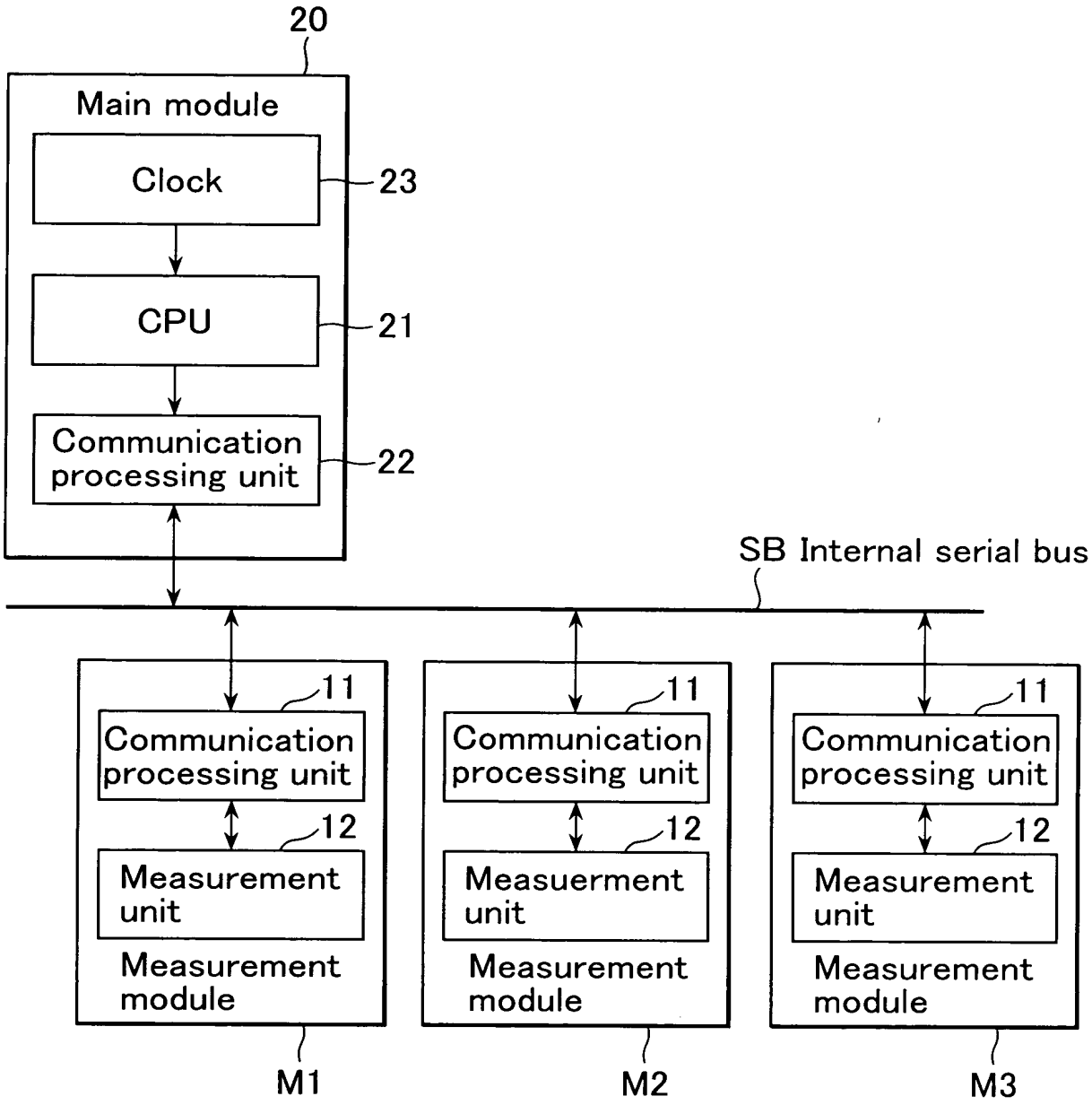


FIG.6 (Prior Art)

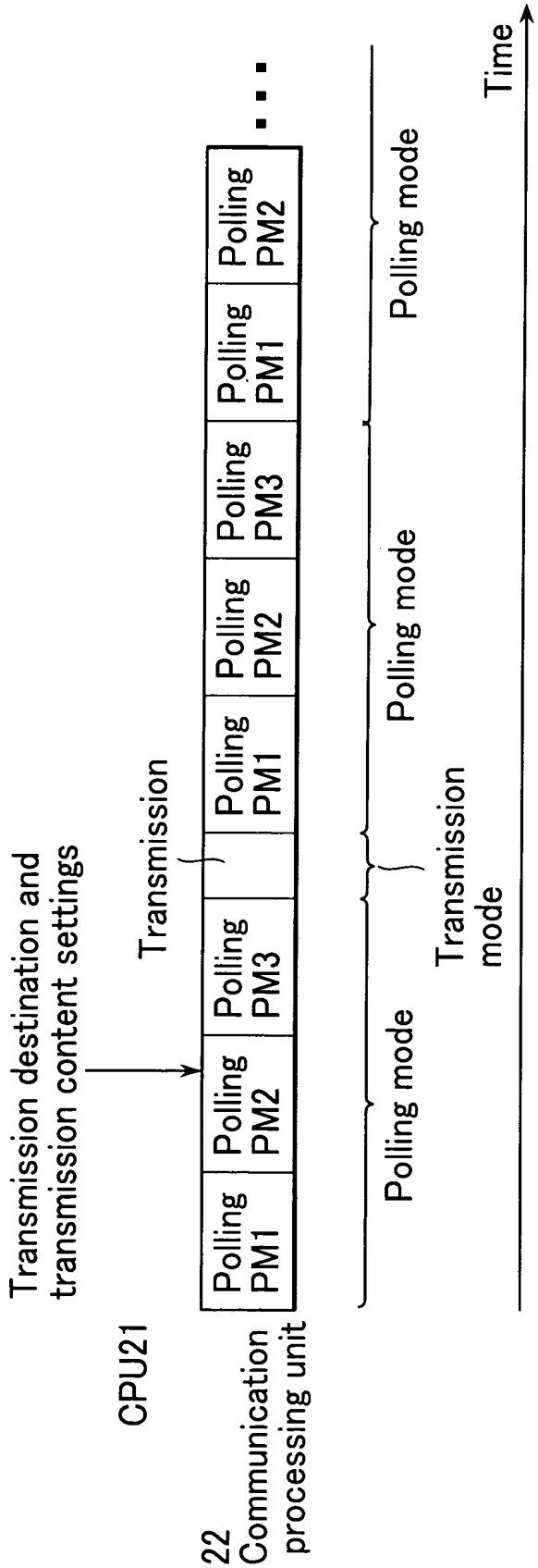


FIG.7

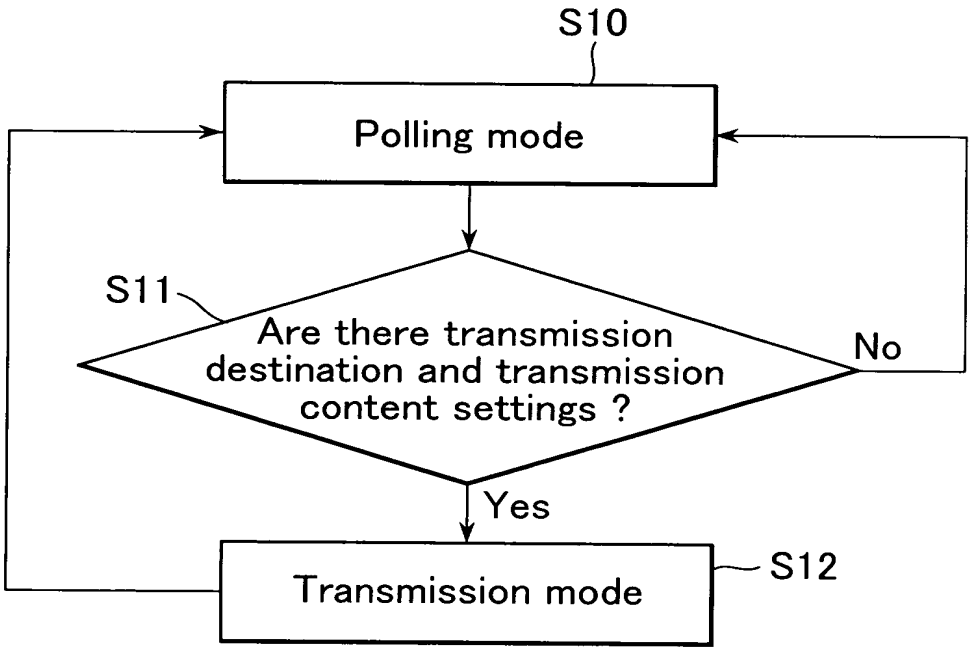
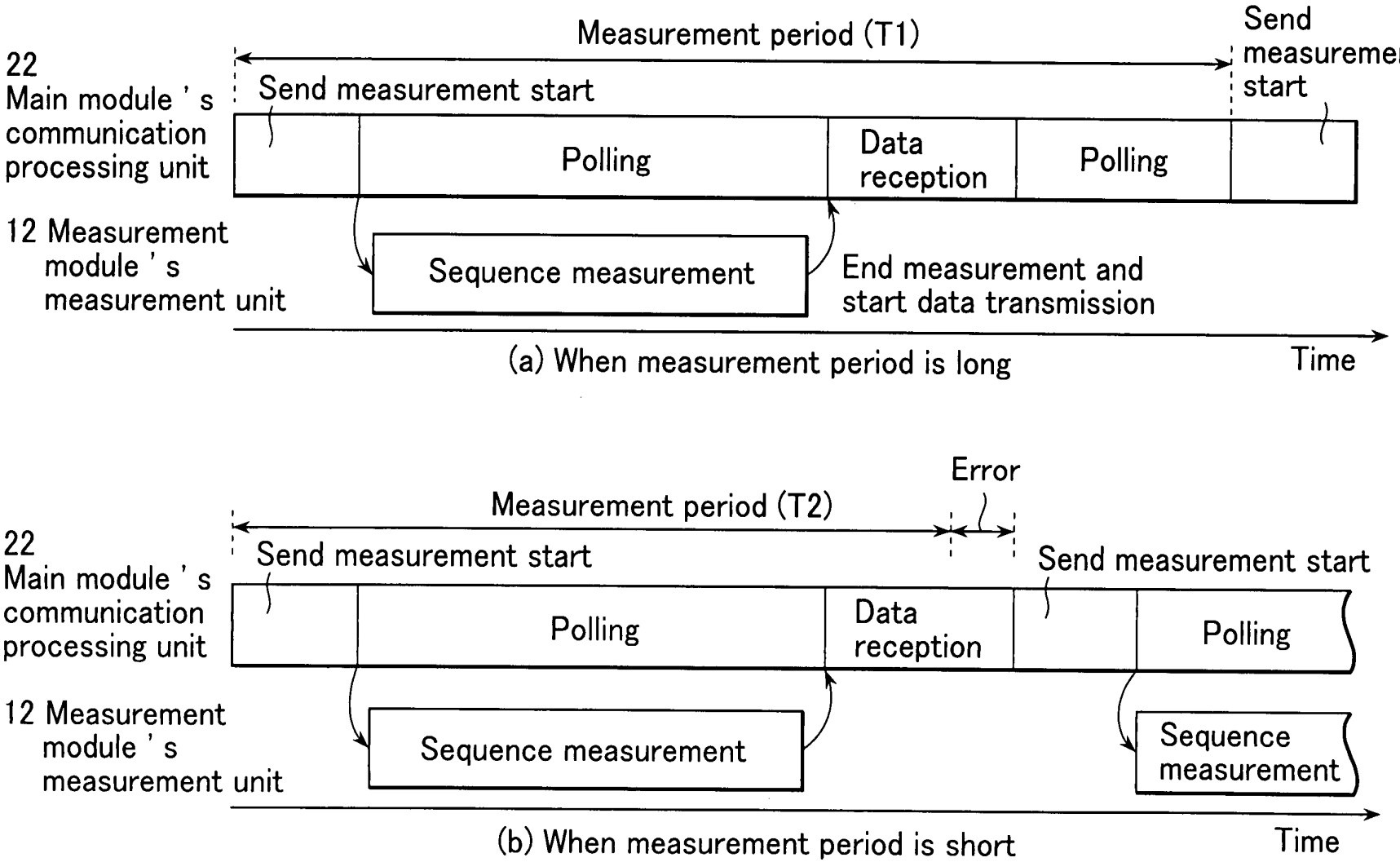

S10
Polling mode
S11
Are there transmission destination and transmission content settings ?
No
Yes
Transmission mode
S12

FIG.8 (Prior Art)



Westerman, Hattori, Daniels & Adrian, LLP
Title: Multi-Point Data Collection Apparatus
By:Takehisa TANAKA.
Attorney Docket: 031116

FIG.9

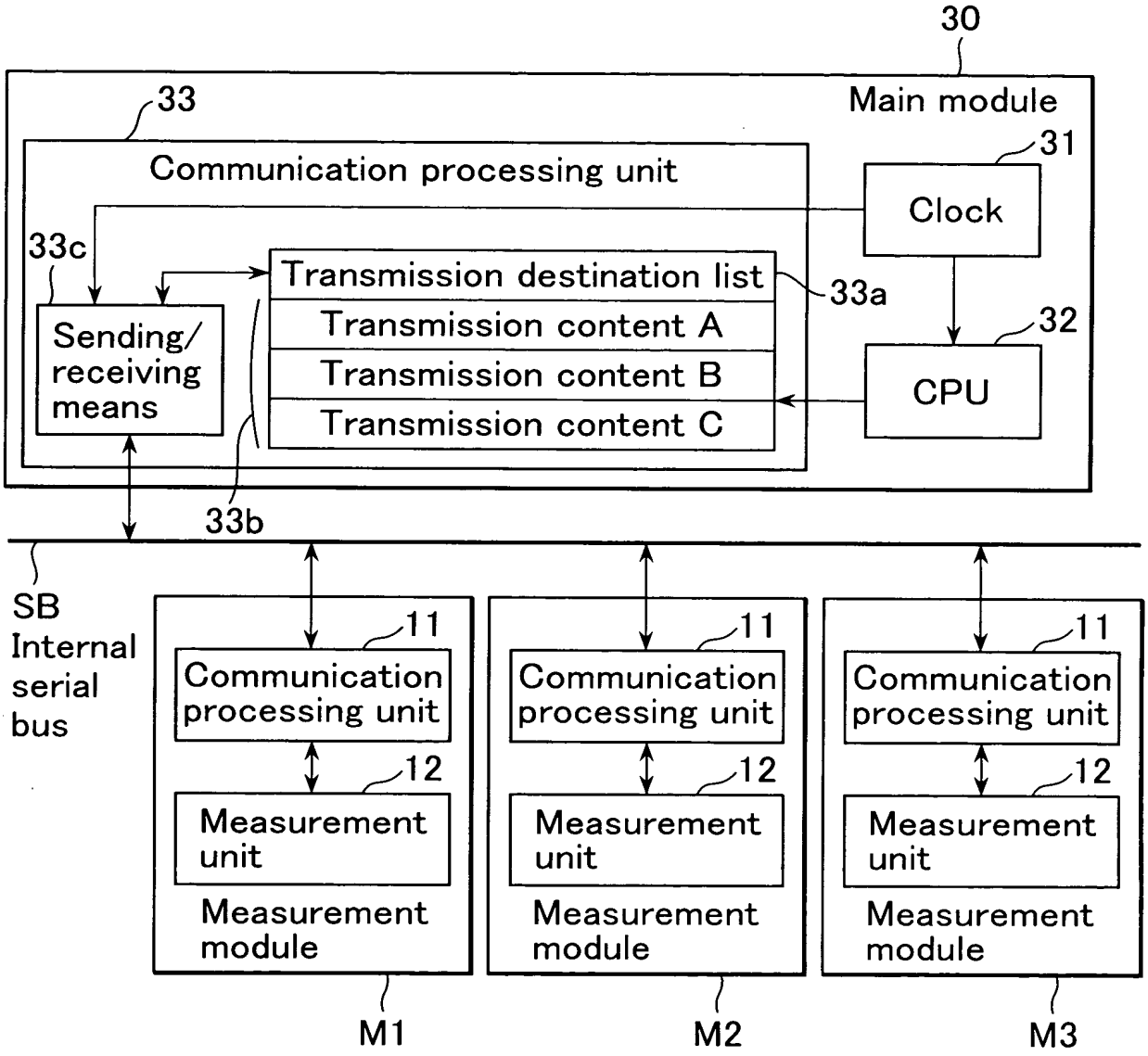

30
Main module
33
Communication processing unit
31
Clock
33c
Transmission destination list
33a
Transmission content A
Transmission content B
Transmission content C
Sending/ receiving means
32
CPU
33b
SB Internal serial bus
11
Communication processing unit
12
Measurement unit
Measurement module
M1
M2
M3

FIG.10

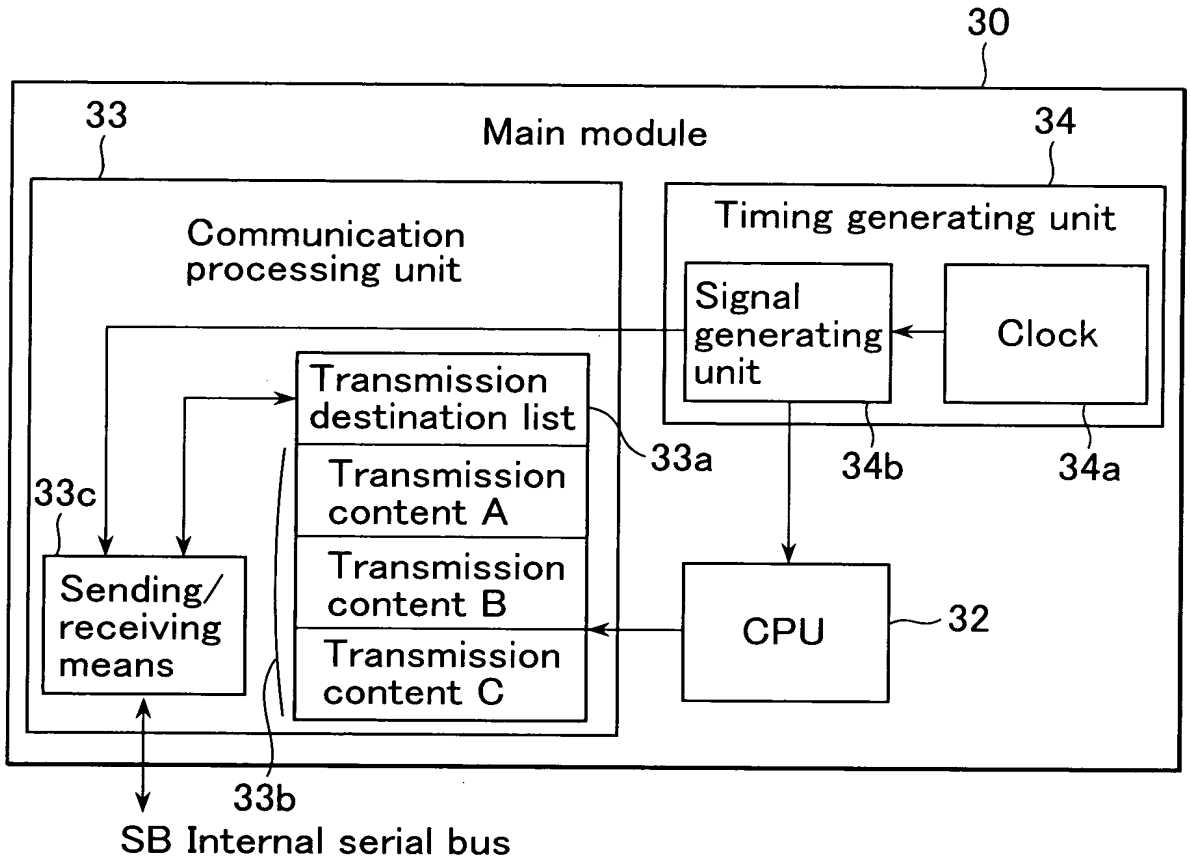

30
33
Main module
34
Communication processing unit
Timing generating unit
Signal generating unit
Clock
Transmission destination list
Transmission content A
Transmission content B
Transmission content C
33a
34b
34a
33c
Sending/ receiving means
CPU
32
33b
SB Internal serial bus

FIG.11

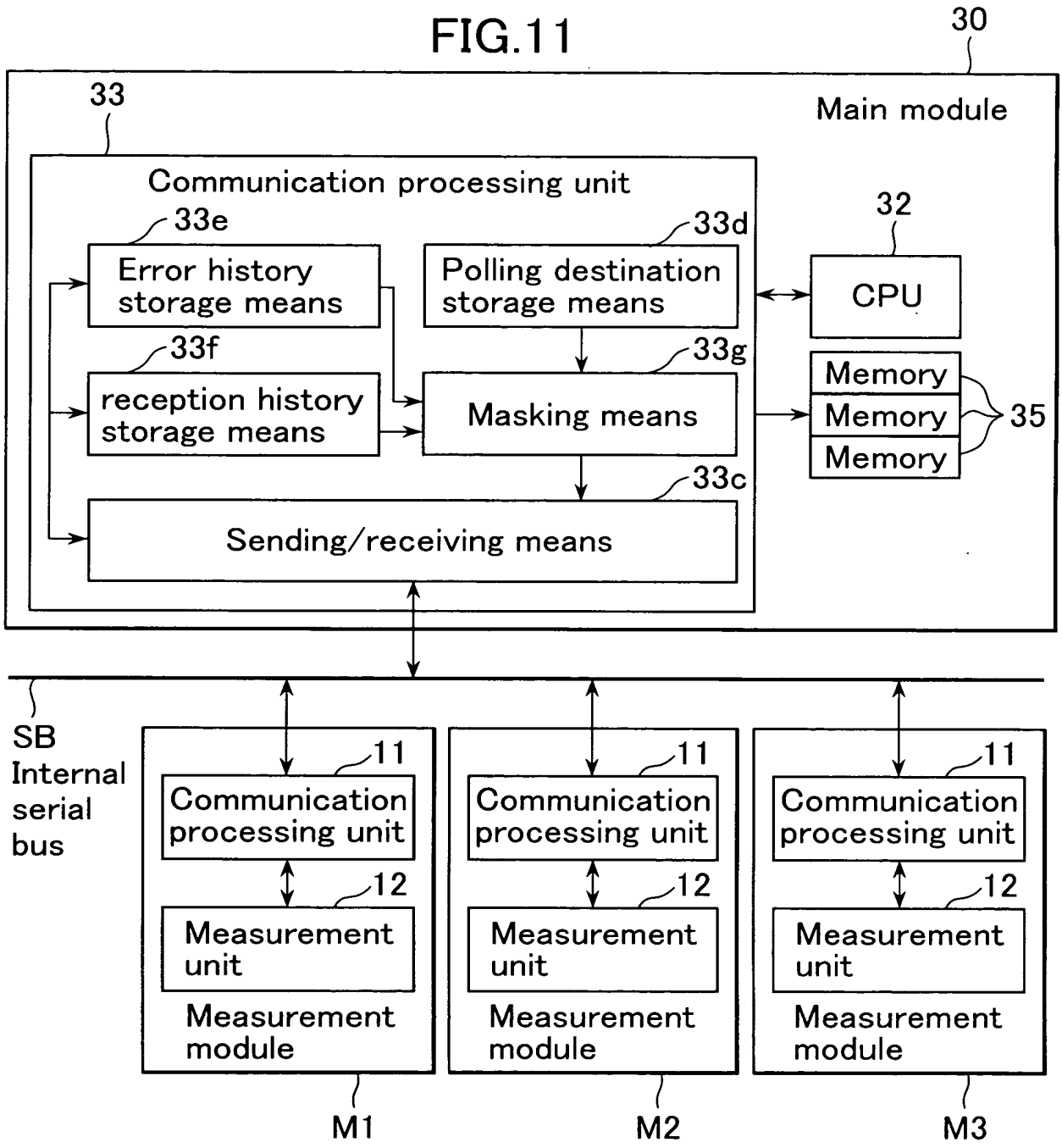

30
Main module
33
Communication processing unit
33e
Error history storage means
33d
Polling destination storage means
32
CPU
33f
reception history storage means
33g
Masking means
Memory
Memory
Memory
35
33c
Sending/receiving means
SB Internal serial bus
11
Communication processing unit
12
Measurement unit
Measurement module
M1
M2
M3

FIG.12

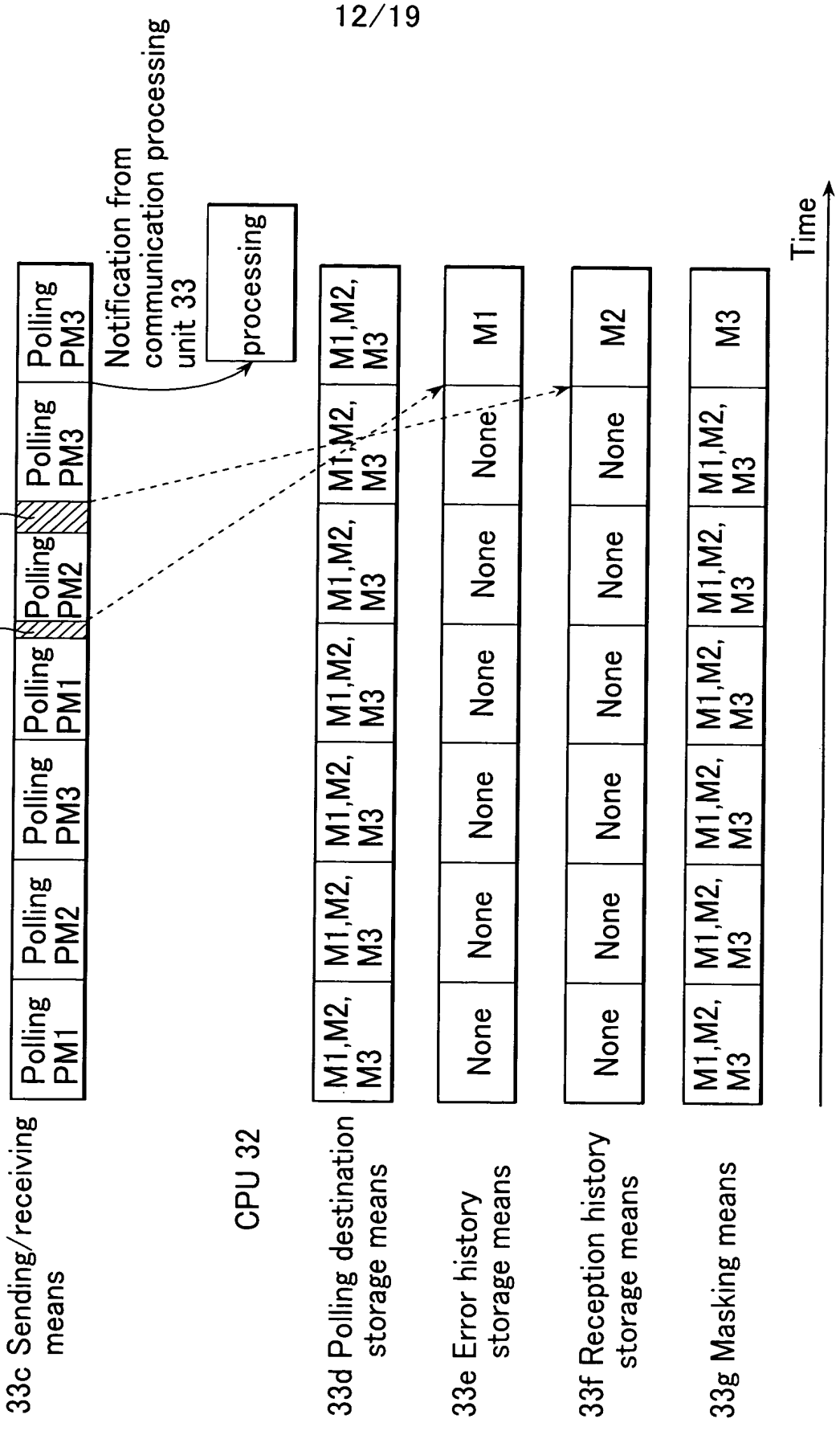

33c Sending/receiving means
CPU 32
33d Polling destination storage means
33e Error history storage means
33f Reception history storage means
33g Masking means
Polling PM1
Polling PM2
Polling PM3
Error
Data reception
Notification from communication processing unit 33
processing
M1,M2, M3
None
Time

FIG.13

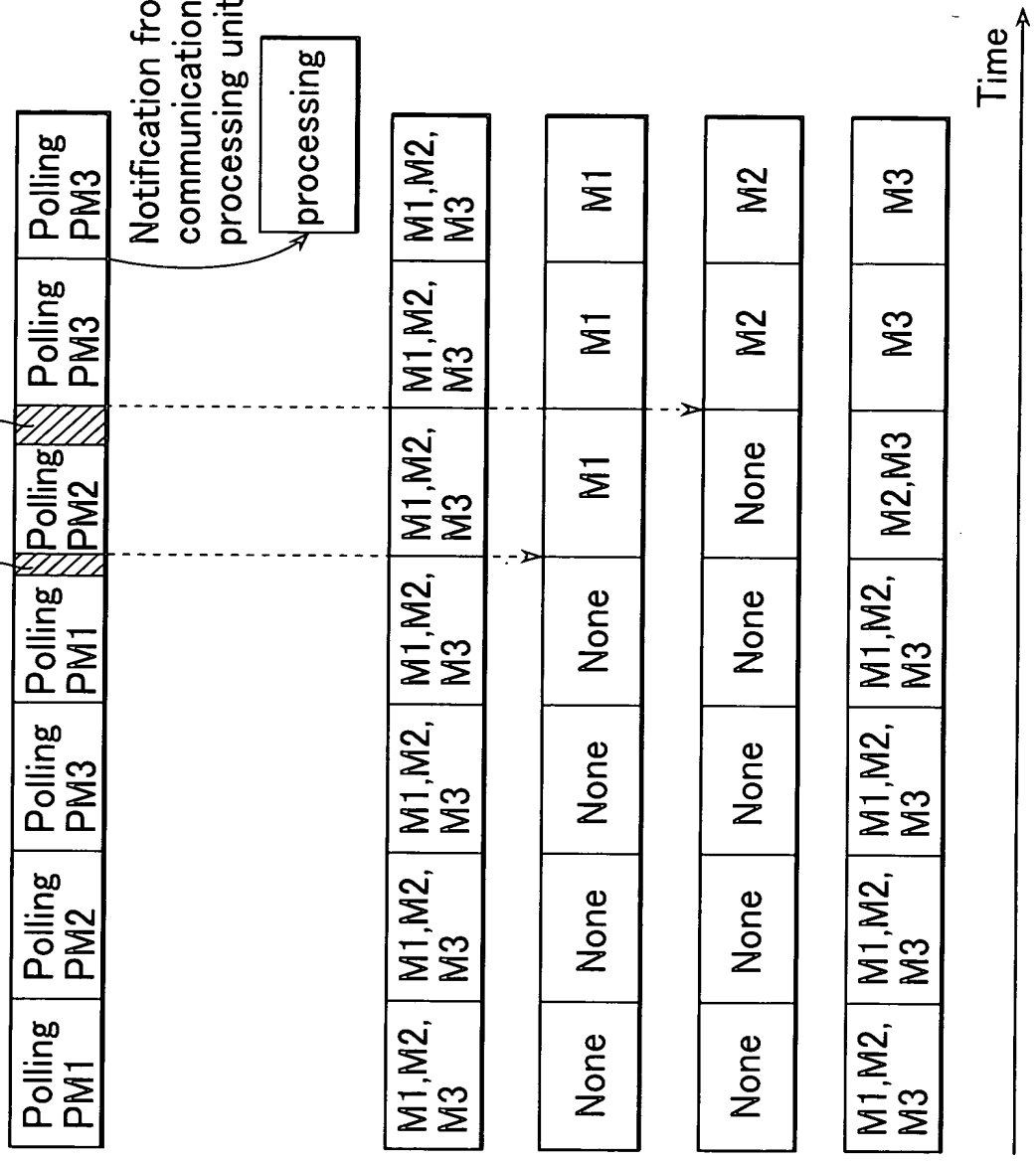

Error
Data reception
Notification from communication processing unit 33
processing
Time
CPU 32
33c Sending/receiving means
33d Polling destination storage means
33e Error history storage means
33f Reception history storage means
33g Masking means
Polling PM1
Polling PM2
Polling PM3
M1,M2, M3
None
M1
M2
M3
M1,M2, M3
M2,M3

FIG.14

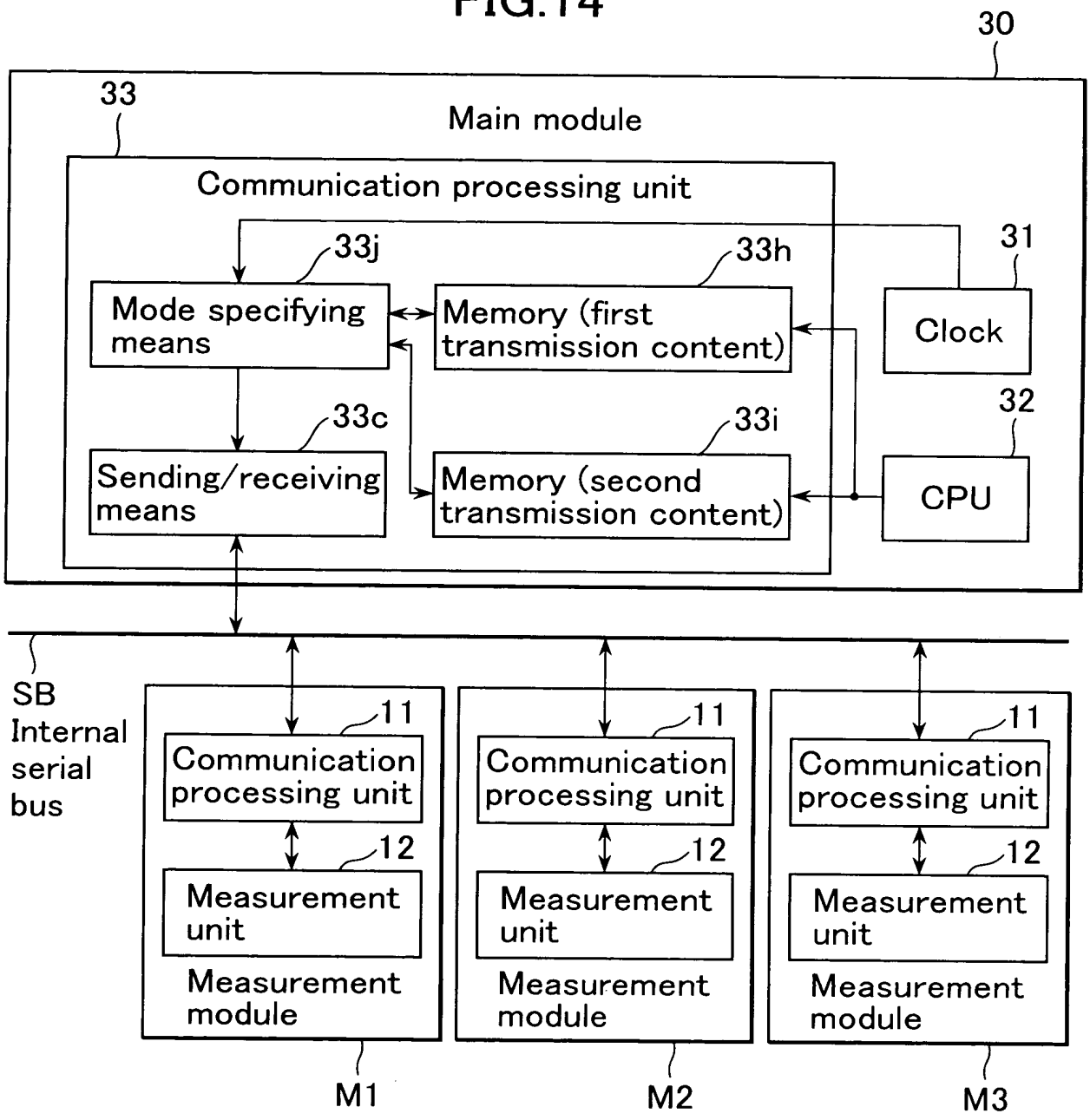

30
33
Main module
Communication processing unit
33j
33h
31
Mode specifying means
Memory (first transmission content)
Clock
33c
33i
32
Sending/receiving means
Memory (second transmission content)
CPU
SB
Internal serial bus
11
Communication processing unit
12
Measurement unit
Measurement module
M1
M2
M3

FIG.15

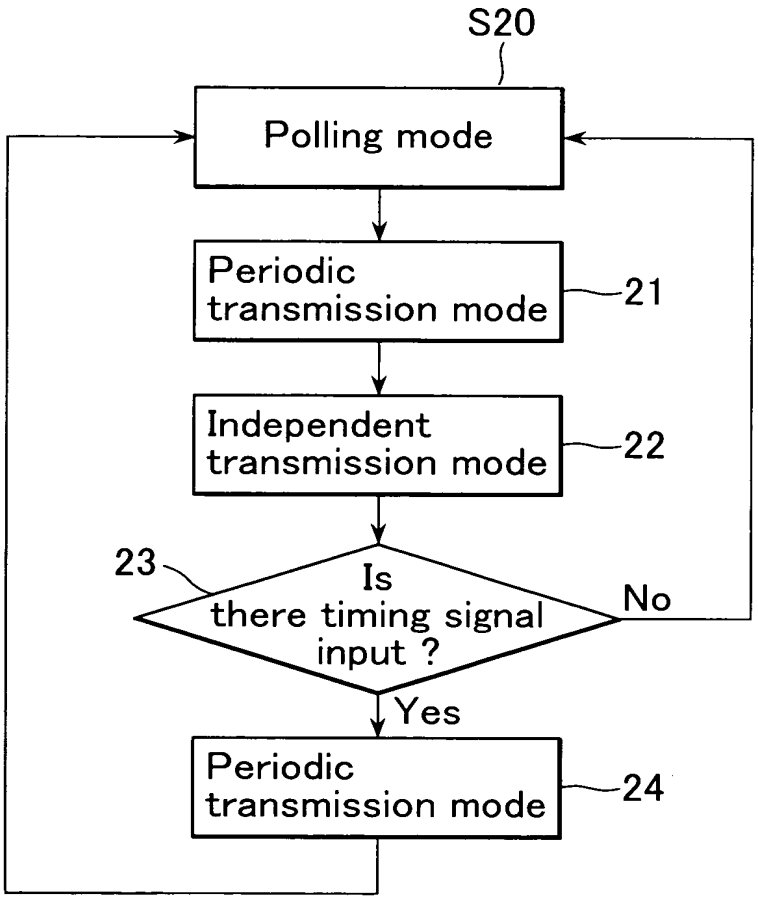

S20
Polling mode
Periodic transmission mode
21
Independent transmission mode
22
23
Is there timing signal input ?
No
Yes
Periodic transmission mode
24

FIG.16

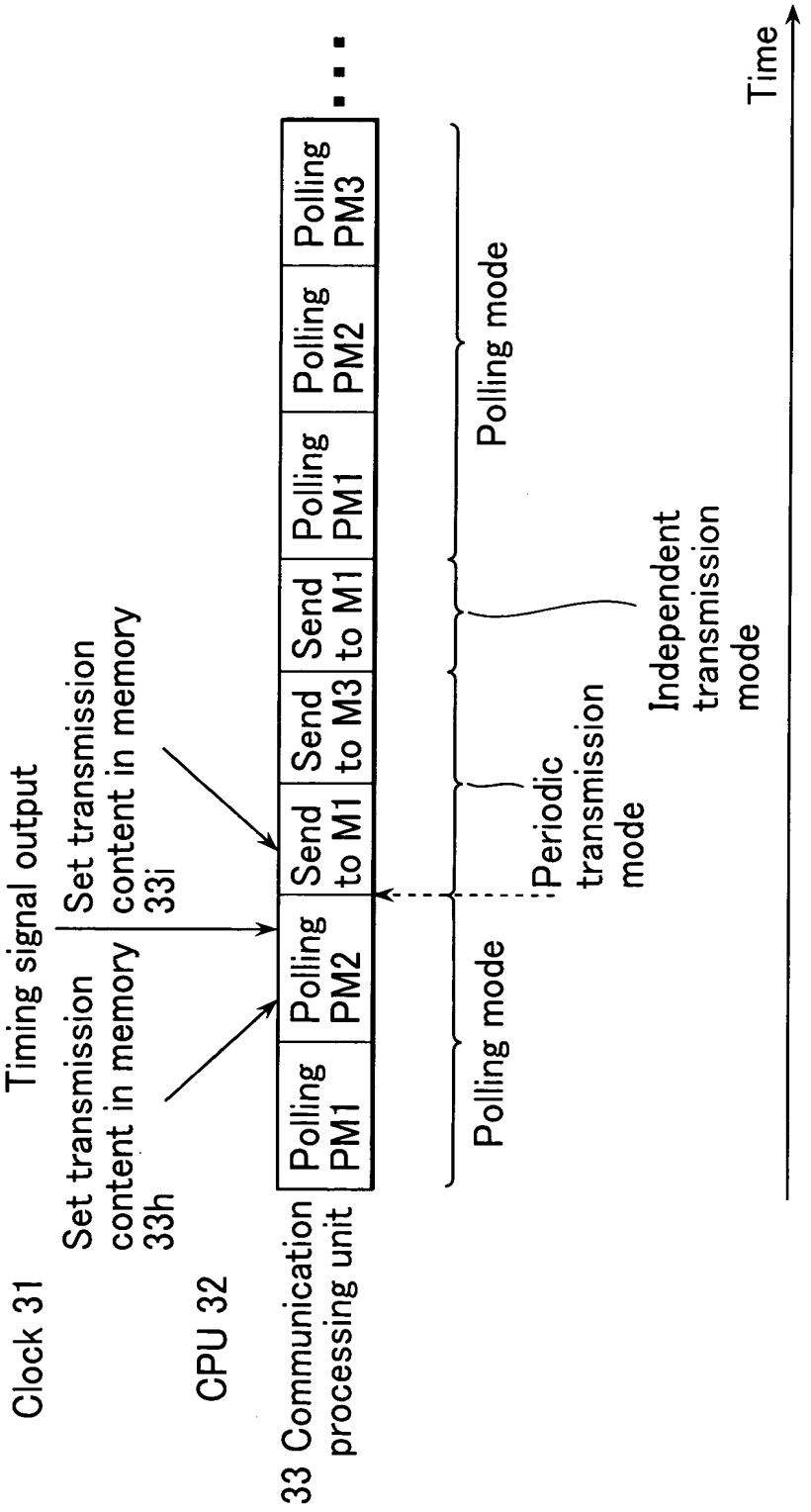

Clock 31
Timing signal output
Set transmission content in memory 33h
Set transmission content in memory 33i
CPU 32
33 Communication processing unit
Polling PM1
Polling PM2
Send to M1
Send to M3
Send to M1
Polling PM1
Polling PM2
Polling PM3
Polling mode
Periodic transmission mode
Polling mode
Independent transmission mode
Time

FIG.17

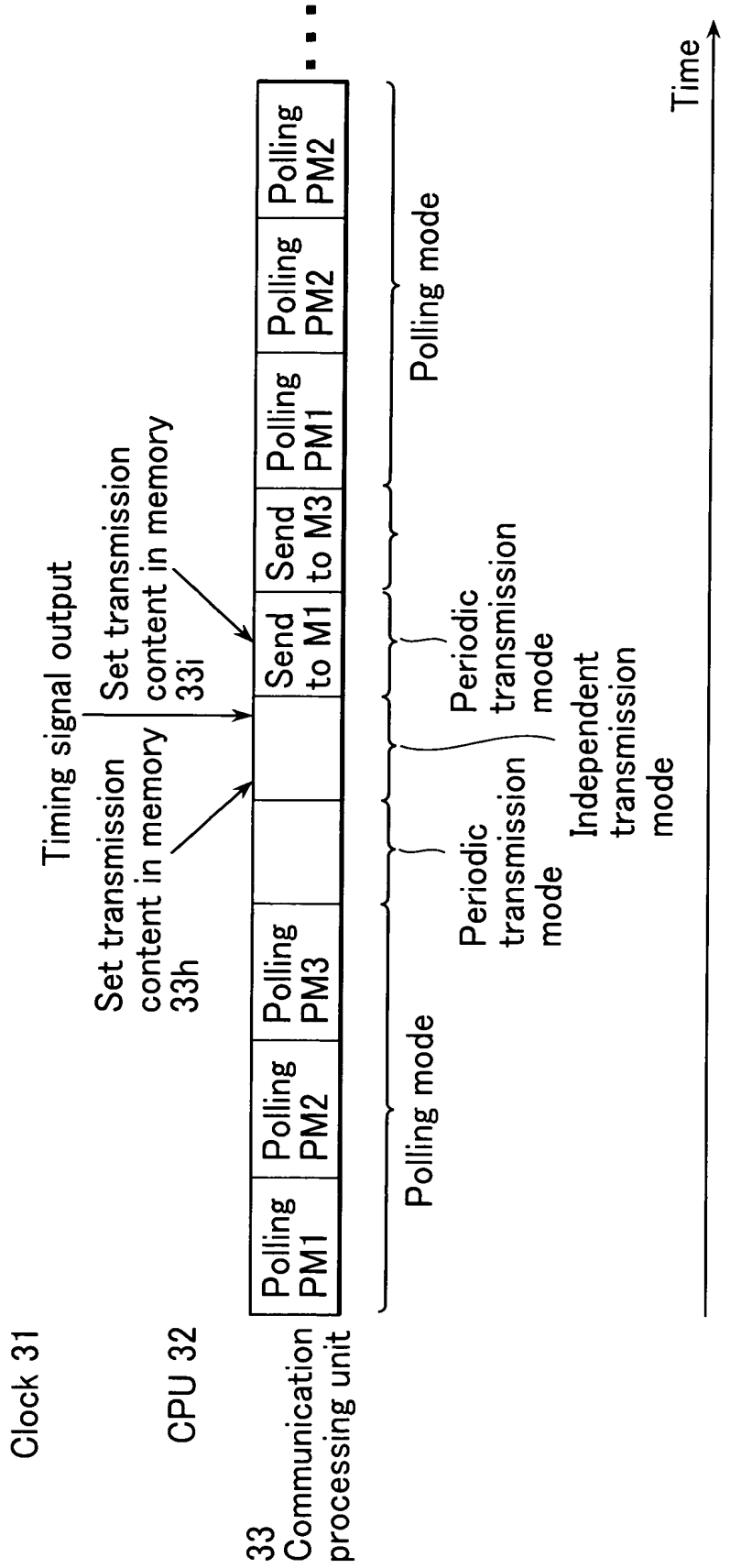

Clock 31
CPU 32
33
Communication processing unit
Timing signal output
Set transmission content in memory 33h
Set transmission content in memory 33i
Polling PM1
Polling PM2
Polling PM3
Send to M1
Send to M3
Polling mode
Periodic transmission mode
Independent transmission mode
Time

FIG.18

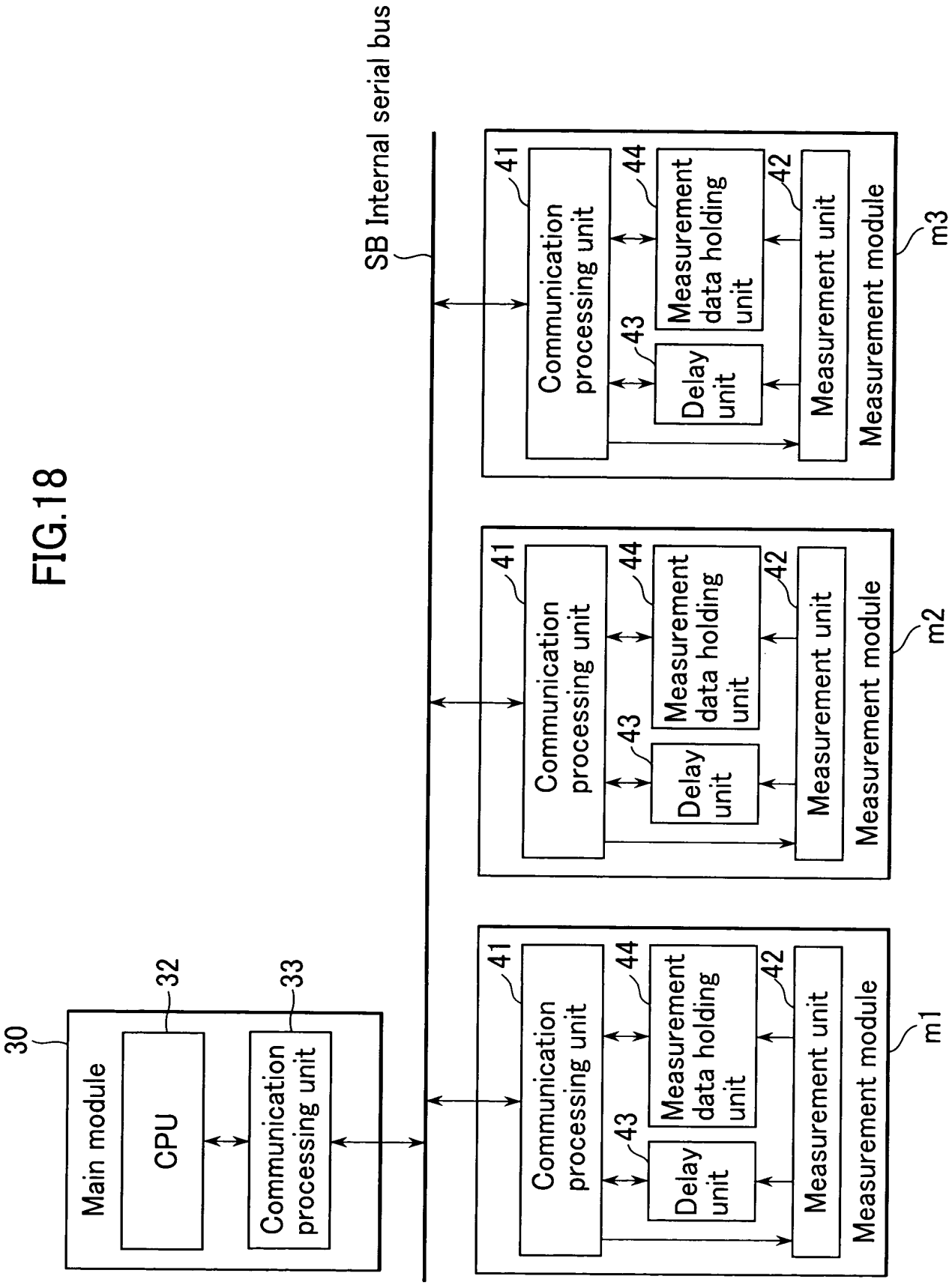
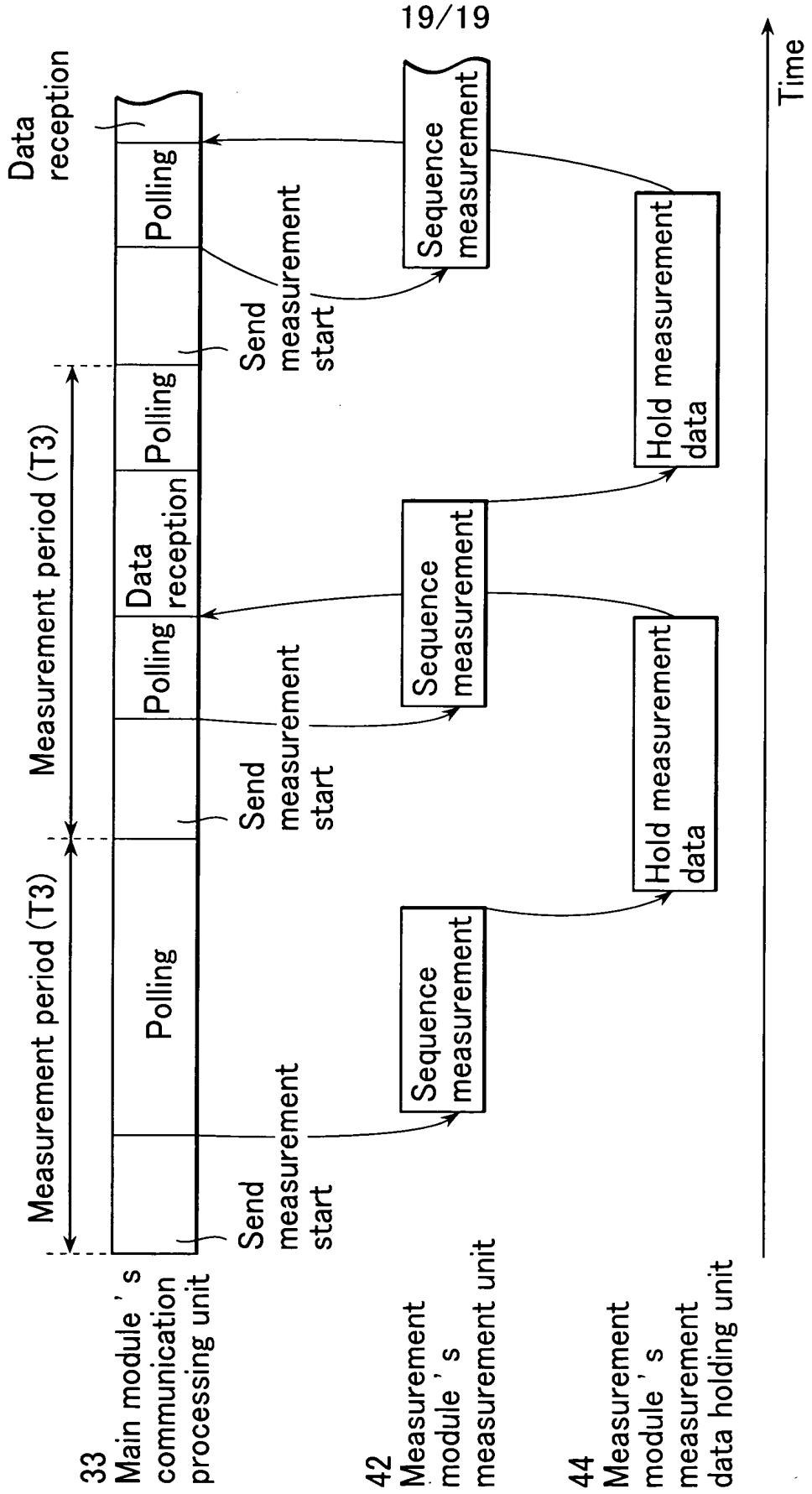

SB Internal serial bus
30
Main module
CPU
32
Communication processing unit
33
m1
Measurement module
Communication processing unit
41
Measurement data holding unit
44
Delay unit
43
Measurement unit
42
m2
Measurement module
Communication processing unit
41
Measurement data holding unit
44
Delay unit
43
Measurement unit
42
m3
Measurement module
Communication processing unit
41
Measurement data holding unit
44
Delay unit
43
Measurement unit
42

FIG.19


Measurement period (T3)
Measurement period (T3)
Polling
Polling
Polling
Data reception
Data reception
Send measurement start
Send measurement start
Send measurement start
Sequence measurement
Sequence measurement
Sequence measurement
Hold measurement data
Hold measurement data
Hold measurement data
Time
33 Main module's communication processing unit
42 Measurement module's measurement unit
44 Measurement module's measurement data holding unit